

## **NSTX Weekly Report (July 27, 2007)**

**FY 2007 NSTX plasma operations completed on June 22, 2007.**

**Planned: 12 weeks**

**Completed: 12.63 weeks with 1,879 plasma discharges**

The 2007 NSTX Results and Theory Review was held on Monday and Tuesday, July 23rd and 24th, at PPPL. During the two days, 42 researchers gave 57 presentations on both experimental and theory/analysis results from the preceding year across the full range of physics topics covered during the run campaign. The following number of talks given in each topical group were: Boundary - 14, Transport and Turbulence - 10, MHD and Energetic Particles - 19, Solenoid-Free Start-up - 1, Waves - 3, Integrated Scenario Development - 6, Diagnostics - 4. The presentation material is available on the NSTX web page. (S. Kaye)

On Wednesday, July 27th, the annual NSTX run assessment was held, during which NSTX Research and Engineering staff met to propose and discuss opportunities to improve the NSTX operations. Discussions focused on possible improvements to the coordination of the research program, the support of collaborative efforts, the layout of the run schedule, run staffing and the allocation of resources for equipment and spare parts. A large and varied range of suggestions were recorded and will be distributed to the NSTX team for further comments. NSTX project management will then review these suggestions and prioritize plans to be implemented for upcoming run periods. (A. van Halle)

No NSTX Monday Physics Meeting this week. (S. Kaye)

### **Engineering Operations (A. von Halle, C. Neumeier)**

NSTX In-vessel diagnostic calibrations continued this week with optical and spatial (Faro Arm) measurements of PCHERS, the Johns Hopkins Tangential Optical Soft X-Ray (tOSXR) array and the Ultrasoft X-Ray (USXR) arrays, the Edge Neutral Density Diagnostic, VIPS, and CCD cameras. Upon completion of calibrations, various valves and windows are being removed and brought to the Vacuum Prep Lab for maintenance. Other in-vessel activities this week included a test and alignment of the vessel glow probe, as well as inspections of the HHFW antennas. Also this week, the annual NSTX run assessment was held, during which Research and Engineering staffs propose and discuss opportunities to improve the NSTX program.

The NSTX test cell will be in unrestricted (card reader) access this coming week.

### **Research Operations (M. Bell)**

#### **Boundary Physics Operations (H. Kugel)**

- The following boundary related talks were given at the NSTX Results Review  
"Review of NSTX lithium experiments: XP-718 (pellet injection) and XP-719 (surface coatings)", H. Kugel  
"Injection and dispersion of Li powder in NSTX discharges", D. Mansfield  
"Lithium loaded target plate for high performance plasma in NSTX", L. Zakharov

"Divertor heat flux reduction and detachment in highly shaped plasmas", V. Soukhanovskii  
"High pressure SGI fueling", V. Soukhanovskii  
"SOL width scale lengths in NSTX", J.-W. Ahn  
"Small ELM regimes", R. Maingi  
"ELM characterization in NSTX", R. Maqueda  
"Inter-ELM filaments on MAST", G. Cunningham  
"Electrode biasing experiment for local SOL control in NSTX", S. Zweben  
"Turbulence and intermittency studies in NSTX using probes", J. Boedo  
"Reduced simulations of boundary turbulence in NSTX", J. Myra  
"Analysis of magnetic perturbation in BOUT runs for NSTX", M. Umansky  
"Modeling of blob formation in NSTX edge turbulence", T. Stoltzfus-Dueck  
"H-mode measurement via the FIRETIP and gyrocenter shift", K.C. Lee

#### Diagnostic Operations (R. Kaita)

The "white plate" detector response calibrations for the Johns Hopkins University tangential "optical" soft X-ray (tOSXR) diagnostic and the edge neutral density diagnostic (ENDD) have been completed. Calibrations of spectroscopic diagnostics for the Lawrence Livermore National Laboratory collaboration have begun.